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THE ROLE OF PERCEIVED CREEPINESS AND CONSUMER RESISTANCE IN CONSUMER HABITS WITH VOICE ASSISTANTS: A BEHAVIORAL REASONING PERSPECTIVE

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Abstract

The purpose of this study is examining the effects of perceived creepiness and consumer resistance on consumer habits with Smart voice assistants in online shopping based on Behavioural Reasoning Theory. The population of the study consists of voice assistant users in Turkey. Data were collected from 252 voice assistant users aged 18 and above through an online survey technique, using online channels, employing a convenience sampling method. Quantitative research methods were employed in the study and the data were analyzed with PLS-SEM. Results showed that perceived creepiness increases consumers' resistance to SVAs. Also, consumer resistance has a negative effect on attitude, while attitude has a positive effect on the habit of using voice assistants. Results were discussed based on Behavioural Reasoning perspective and recommendations were offered for theoreticians and practitioners. This study makes a unique contribution to the literature on voice assistants, behavioral reasoning theory and consumer behavior by considering perceived creepiness as an inhibitor in the habitual use of voice assistants.

Keywords: *Voice assistants, Consumer Resistance, Perceived Creepiness, Behavioral Reasoning Theory*
JEL Classification: *M30, M31, M20*

TÜKETİCİLERİN SESLİ ASİSTAN ALIŞKANLIKLARINDA ALGILANAN ÜRKÜTÜCÜLÜK VE TÜKETİCİ DİRENCİNİN ROLÜ: DAVRANIŞSAL NEDEN PERSPEKTİFİ

Öz

Bu çalışmanın amacı, tüketicilerin çevrimiçi sesli asistan kullanım alışkanlıklarına algılanan ürkütücülük ve tüketici direncinin etkilerini incelemektir. Çalışmanın evrenini Türkiye'deki sesli asistan kullanıcıları oluşturmaktadır. Kolayda örnekleme yöntemi ile çevrimiçi anket tekniği kullanılarak, çevrimiçi kanallar vasıtası ile 18 yaş üstü 252 sesli asistan kullanıcısından veri toplanmıştır. Çalışmada nicel araştırma yönteminden faydalanılmış olup veriler ve en küçük kareler yapısal eşitlik modellemesi (PLS-SEM) ile analiz edilmiştir. Yapılan analiz sonuçları, algılanan ürkütücülüğün tüketicilerin sesli asistanları online alışveriş amacıyla kullanımında tüketici direncini artırdığını göstermiştir. Ayrıca, tüketici direncinin tüketicilerin sesli asistanlara karşı tutumu üzerinde olumsuz bir etkiye sahipken, tutumun sesli asistan kullanma alışkanlığı üzerinde olumlu bir etkiye sahip olduğu ortaya konmuştur. Bu çalışma algılanan ürkütücülüğü sesli asistanların kullanımının alışkanlık haline gelmesinde bir inhibitör olarak ele alarak tüketici davranışları alan yazınlarına özgün katkı sağlamaktadır.

Anahtar Kelimeler: *Yapay Zekâ Temelli Sesli Asistanlar, Tüketici Direnci, Algılanan Ürkütücülük, Davranışsal Neden Teorisi*
JEL Sınıflandırması: *M30, M31, M20*

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1. Introduction

As a result of enormous advancements in artificial intelligence (AI), particularly voice recognition and natural language processing (hereafter NLP) technologies, artificial Intelligence (AI)-based smart voice assistants have become ubiquitous tools in the evolution of traditional consumer-company interactions (Mou & Meng, 2023). Voice assistants are intelligent software programs that use AI-powered NLP technology to recognize and understand human speech, responding with a human-like voice accordingly (Mishra et al., 2022:1). Consumers utilize voice assistants for a wide range of activities including remembering planned meeting, listening to music, controlling smart home devices, shopping online and providing forecast info (Cao et al., 2019). Some of them has voice shopping features such as making reservations, purchasing products, and tracking orders (DuHadway, 2017). These innovative agents are almost omnipresent and progressively becoming a part of daily lives (Jan, et al., 2024:3). The American Marketing Association states that voice assistants are the future of marketing and that they could potentially replace mobile apps for shopping, as they can be integrated with messaging applications like Facebook, WhatsApp, and Skype (DuHadway, 2017). Market Research Future Report (2022) indicates that the voice agent market is predicted to surpass USD 24.98 billion by 2030, growing at a compound annual growth rate of 24.2%. Additionally, a study by Future Market Insights in 2022 predicts that the conversational commerce market will reach USD 26.3 billion by 2032. Despite their widespread adoption, it remains unclear how customers engage in and consumer resistance to these devices in the context of online shopping (Jan et al., 2024).

Previous studies have primarily focused on the overall adoption smart voice assistants (hereafter SVA) (Singh et al.2024; Al-Fariat et al., 2023; Vimalkumar et al., 2021) while largely neglecting the barriers to adopting AI-powered conversational agents. Moreover, these studies approached to the SVA usage from the intention to use or continuous usage perspective rather than resistance factors. To bridge this gap, we examined perceived creepiness as barrier to adoption and an antecedent of resistance to use SVAs for online shopping. Perceived creepiness refers to a psychological barrier to adoption of new technologies that contributes to the resistance behaviour of consumers (Raff et al., 2024:1). Studies (Mou & Meng, 2023) showed that privacy concerns and uncontrolled collection by companies has led consumers to feelings of creepiness that effects positively resistance intention. Despite studies (Mou & Meng, 2023; Handrich, 2021) that explored creepiness in SVA adoption, continuous usage context, it has been neglected that the effect of creepiness on creating habit of using SVA for online shopping. According to Campbell & Cochrane, (1999) habit plays a key role to determine the depth of consumer engagement. Moreover, habit contributes to the continuation of the existing behaviour. Building on this, current study employed habit as an output construct which is regarded as a crucial alternative mechanism for understanding technology usage (Venkatesh et al., 2012).

With this study it is aimed to contribute to the voice assistant adoption and resistance literature by employing behavioural reasoning theory (hereafter BRT), which allows consumer researchers and managers to test the effect of resistance on the habitual behaviour of voice assistants for shopping purposes. Also, it contributes BRT and SVA resistance and adoption literature by integrating perceived creepiness as an inhibitor to adoption. There is extant literature on the intention to use SVA in different frameworks however, current study seeks to explore the factors to create a strong habit to use SVA in online shopping context in the framework of BRT incorporating perceived creepiness being a novel inhibitor construct to enlighten the process of decision making of consumers.

Hence, this study seeks to investigate the factors that affect the resistance and habit of using of SVAs for online shopping, employing behavioural reasoning theory perspective partially. In this context, we examine the influence of perceived creepiness as an inhibitor on resistance intention (reason against. Also, it is investigated that the effect of resistance intention on the habit of SVA usage. The study was conducted with a quantitative research method. The sample consists of voice

assistant users aged 18 and over. Using online survey technique with convenience sampling, 252 sample units were reached. The data were analysed through partial least squares structural equation modelling (PLS-SEM) using the Smart PLS software. SPSS package program was used for descriptive statistics.

2. Theoretical Background and Literature Review

2.1. AI-Based Digital Voice Assistants

Voice Assistant is an intelligent software that can recognise and interpret human speech using artificial intelligence natural language processing technology and respond accordingly in a human-like voice (Mishra et al., 2022: 1). These innovative technologies have become almost omnipresent (Kaplan& Haenlein, 2019) and are increasingly integrated into daily life since, they can operate on a wide range of devices including smartphones, speakers, desktop/laptop computers, tablets, wearable devices, gaming consoles, TV consoles, VR headsets, cars, and Internet of Things (IoT) devices (Chattaraman et al., 2019). Also, they are capable of understanding voice-based commands from users which enables them to perform tasks using everyday natural language, including following news, providing weather forecasts, online purchase, organizing playlists, or making reservations (Fernandes & Oliveira, 2021: 180). In the literature, it's referred to different names as voice based conversational agents (Jan et.al, 2024), smart voice assistants (Al-Fraihat et al., 2023), AI-based conversational digital assistants (Chattaraman et al., 2019), voice based digital assistants (Vimalkumar et al., 2021). There is extant literature on exploring the factors inspiring consumers to use digital voice assistants in the framework of Technology Acceptance Model (TAM) (Kowalczuk, 2018), service robot acceptance model (Fernandes & Oliveira, 2021), uses and gratifications theory (McLean & Osei-Frimpong, 2019), complexity theory (Al-Fraihat et al., 2023). However, these studies have primarily focused on adopting or the intention to use of voice-based agents, while factors contributing to resistance toward the smart voice assistants for shopping purposes have attracted less interest. To bridge this research gap, this study examines the reasons behind resistant to using smart voice assistants for online shopping. Drawing on BRT-based model it is examined that the factors effecting to create habit of using AI-Based digital voice assistants for online shopping.

2.2. Behavioural Reasoning Theory

BRT (Westaby, 2005) is a theory that emphasizes the critical role of values or beliefs in predicting reasons, intentions, and user behavior, providing marketing scholars and practitioners with valuable insights into the consumer decision-making process in the context of technology adoption. It is originated from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and Theory of Planned Behaviour (TPB) (Ajzen, 1985). BRT establishes the connections between beliefs or values, reasons (both for and against), global motives (e.g. attitude), intentions, and measures of user behaviour. BRT includes "reasons for and reasons against" components, being context specific provides contextual information, offer a more comprehensive explanation of human behaviour and decision-making (Claudy et al., 2015).

Previous research employed BRT to examine the adoption and resistance to electric vehicle adoption (Uiddin et al., 2024), sustainable purchase intention (Zafar et al., 2024), organic food purchase behaviour (Tandon et al., 2021), sustainable clothing (Diddi et al., 2019), internet of things (IOT) based wearables (Sivathanu, 2018). However, SVA adoption within BRT framework is limited. In the context of smart voice assistants Jan et al., (2024) extended the behavioural reasoning theory by incorporating technology readiness as an inhibitor of reason, attitudes, usage and resistance intention. In their study, discomfort and insecurity are investigated as inhibitors; perceived usage barrier, perceived functional barrier and perceived intrusiveness are examined as reasons against usage. As a result, inhibitors were shown to have positive influences on reasons against usage. Reasons for usage are linked to both a positive attitude toward usage and a higher intention to use. Moreover, reasons against usage are associated with a negative attitude toward

usage and a stronger intention to resist. The attitude toward usage significantly boosts usage intention while diminishing resistance intention.

Choudhary et al., (2024) investigated the factors effecting adoption intention towards AI voice assistant usage in the framework of BRT. The study has shown that the "value of openness to change" has a significant impact on the "reasons for" adopting voice assistants, with "performance expectancy" and "hedonic motivation" being the primary drivers of a positive attitude toward adoption. Conversely, the "value barrier" and "image barrier" emerge as the key factors among the "reasons against" adoption, leading to reluctance in using voice assistants. Furthermore, the findings emphasize that these "reasons" (both for and against) are pivotal in shaping consumers' overall attitude toward voice assistants.

Sahu et al. (2020) reviewed the literature on BRT and recommended further development of the framework by introducing additional exogenous variables. To address this gap, this study integrates perceived creepiness as an antecedent to reasons (against), motives, and global behaviours. Moreover, perceived resistance is referred to as a "reason against" component, and its influence on the attitude toward forming a strong habit of using smart voice assistants for online shopping is examined. Hence, this study aims to explore the habits of using voice assistants (VAs) by employing the BRT framework.

2.3. Habit of SVA usage

Habits are learned behaviours that become automatic responses to specific situations or stimuli, emerging from repeated actions and requiring minimal attention while reflecting past experiences (Liao et al., 2006: 471). In the context of virtual assistants (VAs), habit fosters to develop mutually beneficial relationship between the user and the technology (Jacucci et al., 2014). As a result, habit can be considered as a significant factor determining the degree of consumer engagement to SVAs. Grounded in this, we used habit as consequent construct of our model rather than adoption or usage intention. Previous studies examined habit as an antecedent of continuous usage intention behaviour in the context of mobile apps (Wu, 2017) and mobile financial services (Amoroso & Lim, 2017). Additionally, McCarthy et al., (2017) investigated habit as an outcome construct in the context of healthy food consumption to assess the factors that contribute to developing a habit of eating healthily.

A large body of research investigate factors affecting the adoption of SVAs in the context of intention to use (Al-Fraihat et al., 2023), continuous usage intention (Hernandez-Ortega et al., 2024) and acceptance (Fernandes and Oliveira, 2021) constructs. However, research on consumer habit creation in the context of SVA has still been limited. So, this study approaches to adoption of SVAs from habit creation perspective. There is only a study (Acikgoz & Vega, 2022) investigating the factors assessing to create strong habit of SVA usage in the framework of TAM in the literature. They examined the effect of privacy cynicism, and trust on the habit creation of SVAs. Hence, current study explores the factors hindering the developing habit of using SVAs for online shopping purposes.

2.4. Perceived Creepiness

Perceived creepiness primarily originates from the field of psychology, particularly in the study of human emotions and social interactions. It is often explored in relation to concepts such as fear, anxiety, and social perception which is defined as "anxiety triggered by the uncertainty of whether there is a genuine threat or not, and/or by the vagueness regarding the specific nature of the potential threat"(McAndrew & Koehnke, 2016:10). One frequent cause of creepiness in these contexts is the masked, concealed, or unclear characteristics of another individual (McAndrew & Koehnke, 2016; Watt et al., 2017). In these situations, it becomes challenging to understand the individual's thoughts and intentions, leading to a sense of uncertainty that contributes to feelings of creepiness (Phillips, 2020; Watt et al., 2017).

Recently, Raff et all., (2024) adapted the construct to technological context and introduced the perceived creepiness scale. The construct has been defined as "a form of subtle unease, an intuitive or instinctive feeling, triggered by a lack of transparency about whether there is a reason to feel threatened or frightened" (Raff et al., (2024: 4). More specifically, it refers to the emotional response triggered by an experience, interaction, technology, or unsolicited communication in which personal information, whether knowingly or unknowingly collected, is used in an unexpected or surprising way, leading to negative feelings (Stevens, 2016: 226).

In the context of smart devices perceived creepiness refers to a psychological barrier to adoption of new technologies that contributes to the resistance behaviour of consumers (Raff et al., 2024: 1). Anthropomorphic features and personification of technologic devices as a human makes the consumers frightened that leads to the perception of creepiness (Stevens, 2016). Also, lack of physical tangibility might lead consumers to emotionally unconnected and hinders long term relationship. As a result, consumers feel discomfort scepticism (Raff et al., 2024: 4). Similarly, lack of transparency in recommendation algorithms of the smart technological device and the personal data they utilize to make these recommendations (Torkamaan et al., 2019) foster the feeling of strain and discomfort which triggers the perception of creepiness.

Since perceived creepiness is a relatively new concept in the field of technology, studies exploring its implications and effects are still in the early stages of research and development. A study (Handrich, 2021) examined the role of perceived creepiness of consumers on resistance and adoption to intelligent personal assistants. He found that perceived creepiness positively affects the resistance intention towards smart voice assistants. They also found that privacy concerns are the predictors of perceived creepiness. Raff et al., (2024) examined the effect of perceived creepiness on the resistance to smart home devices. They found that perceived creepiness negatively influences the perceived ease of use, perceived usefulness and usage intention smart home devices. Studies mentioned above examined perceived creepiness as an inhibitor of usage intention however, it is the first time that investigating effect of creepiness on resistance to create a strong habit of using SVA for online shopping context. By doing so, we expect to understand the consequences of perceived creepiness and enhance the understanding of the concept in the SVA technology context.

2.5. Hypotheses Development.

2.5.1. Perceived Creepiness and Resistance

Resistance is a rejective attitude resulting in the failure of innovative products (Talke & Heidenreich, 2014: 898). It arises from adopter or situation factors such as individual differences of adopters which is called passive form of resistance. Also, in consumer context resistance originates from negative object-based beliefs which are formed through the assessment of innovation characteristics and are manifested as conscious oppositions which is called active resistance (Talke & Heidenreich, 2014). In this study we focused on active resistance arising from product-based beliefs such as perception of creepiness. Perceived creepiness refers to the emotional response triggered by an experience, interaction, technology, or unsolicited communication when personal information is gathered whether you're aware of it or not and used in an unexpected or surprising way, leading to negative feelings (Stevens, 2016: 229). Sohn & Kwon, (2020) highlighted that negative feeling such as fear, doubt and uncertainty could cause innovation resistance on consumers. Thus, it can be inferred that negative feelings evoked by perceived creepiness will lead to consumer resistance intention towards artificial intelligence apps. (Handrich, 2021). Raff et al., (2024) introduced perceived creepiness as a novel inhibitor in the context of smart technologies. In their study they showed that smart home assistants can evoke perceptions of creepiness, leading to resistance. Jan et al., (2024) suggested that reasons against intention to use such as perceived functional risk, perceived usage, and perceived intrusiveness were the barriers which positively contributed to resistance intention of consumers. Handrich, (2021) examined role of consumers 'perceived creepiness towards artificial intelligence assistants.

They found that perceived creepiness positively contributed to the innovation resistance on consumers. The study found that perceived creepiness has mediation effect on the effect of privacy concerns on innovation resistance. Thus, we examine perceived creepiness as a barrier to the adoption of smart voice assistants leading to creepiness. The hypothesis we posit is:

H1. Perceived creepiness positively affects the resistance towards smart voice assistants.

2.5.2. Resistance Intention- Attitudes towards SVA Usage

Attitude is described as a psychological disposition characterized by assessing a specific entity with varying levels of positive or negative regard (Eagly, 1993: 1). According to Pennington & Hastie (1988), within the scope of explanation of making decision process, the perceptions of consumers are positive towards adoption when the reasons are stronger, but the negative perceptions occur when the reasons against adoption are strong. Also, Jan et al., (2024) indicated that reasons against the adoption of innovation such as perceived intrusiveness, and perceived usage barriers negatively affect the attitudes towards innovation adoption. Based on this evidence in the context of smart voice assistants for online shopping purposes we expect that the resistance intention of consumers as a reason against usage will negatively affect the attitude of consumers towards SVA usage. We posit the hypothesis as follows:

H2. Resistance towards using smart voice assistants negatively affects the attitudes of consumers towards SVA usage.

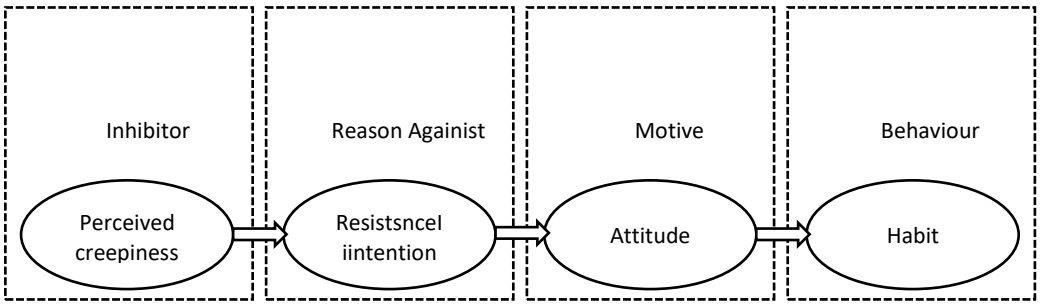
2.5.3. Attitude towards SVA Usage- Habit of SVA Usage

Attitude reflects people's overall positive or negative feelings toward an object and provides a way to understand and assess their ideas and viewpoints (Moriuchi, 2019). In the context of the study attitude refers to an individual's perception, or predisposition toward adopting and using SVAs. Prominent theories providing a behavioural framework including the Technology Acceptance Model (Davis, 1989), reasonable action theory, behavioural reasoning theory (Westaby, 2005) suggest that attitude is a key precursor of adoption and adoption intention which is predictor of action (Claudy et al., 2013). Extant literature (Jan et al., 2024; Choudhary et al., 2024) showing that attitude positively effects the intention behaviour exists. In this context, Acikgoz & Vega (2022), emphasized that habit is a closely related construct, yet it has not received sufficient attention. Despite of the importance of habit-attitude relationship it is still insufficient. So, we propose that attitude towards SVA's may lead to a strong habit of using them for shopping purposes. We posit the hypothesis as:

H3. Attitude towards SVAs has a positive impact on the habit of using SVAs

As a result of the literature review the research model that demonstrates the hypothesis of research was developed as beloved, drawing on the research of Jan et al., (2024) and Raff et al., (2024). Figure 1 demonstrates the research model building on behavioural reasoning theory perspective.

Figure 1. **Research Model**



3. Methodology

3.1. Sampling

The population of research is Turkish smart voice assistant users. The sample of the research consists of 252 voice assistant users aged 18 and above in Turkey. Ten times the number of items rule was employed which is commonly used in determining sample size, particularly in confirmatory factor analysis (Bentler & Chou, 1987). Convenience sampling method was used to reach the sample to represent the main population. Data were collected from consumers by online survey method which is accepted as a more effective and popular method because it provides time and cost benefits (Lefever et al., 2007). The questionnaire, created through Google Forms, was delivered to the participants via online channels including WhatsApp and email. A total of 320 surveys were collected; however, 63 were excluded due to invalid responses. Finally, analyses were conducted with 252 data.

3.2. Measures

The question form consists of an introduction about the study and two parts. The first part includes questions about the demographic characteristics of the participants. The second part is consisting of scales measuring attitude towards voice assistants, habit of using vice assistants, resistance intention and perceived creepiness of consumers. 16 items were adapted from the existing literature to improve validity and reliability of the measurement. They used the assess the constructs of model. Scales whose validity and reliability have been tested in the literature were used. The perceived creepiness scale (Raff et al., 2024) consisting of seven items is adapted to the context of current study. The habit was measured by three items adapted from Acikgoz & Vega (2022). Resistance intention and attitude were measured using sequentially three and three items modified from the research by Jan et al., (2024). To determine semantic errors due to adaptation, the survey applied to 20 people and their suggestions regarding the items were asked. The items causing meaning errors were corrected according to the suggestions. The survey applied to 275 participants but 23 of them were eliminated due to incorrect filling. Finally, 252 surveys were analysed to test the hypothesis. A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed.

4. Analyses and Findings

Initially, the demographic properties of the sample were outlined. Then, confirmatory factor analysis was conducted to test the construct validity of measurement model. hypotheses were tested using PLS-SEM with 4.1.0.6 software. At this phase, both the measurement model and the structural model were tested concurrently using SEM. Structural model consists of perceived creepiness as exogenous variable and resistance intention, attitude and habit as endogenous variables.

4.1. Demographic Characteristics of the Sample

%51 of the consumers was female and %49 of them is male. Most of the participants (%63.5) were aged in 18-25 range. % 23.4 of them were in 26-35 range, %11.1 were aged 36-45 and %2 was 46 and above. They were asked that how often they used SVA. According to the results %36.9 of the participants use SVA one or two times per week. %19.8 of them used one or two times per month. %19,4 use SVAs every day and %18.3 is nonusers. Thus, it can be said most of the participants are SVA users, but the frequency rate of is law. The participants were using SVA for setting alarm (%29.4), checking weather forecast (%26.2), online shopping (%15.9), playlist organizing (11.9) and other purposes (%58.3). Most of the participants (34.5) has income about 10000- minus, %24.6 of them are about 10001-20000 and %24.2 are about 20001-30000 (Table1). Therefore, it can be said that especially the 18-25 age group consumers which have low-income levels are using SVAs in one or two times a week for daily life activities. The demographic characteristics of the participants are demonstrated in Table 1.

Table 1: **Demographic Characteristics of the Sample**

Variable	Categories	N	%
Gender	Female	128	50.8
	Male	124	49.2
	Total Sum	**252**	**100**
Age	18-25	160	63.5
	26-35	59	23.4
	36-45	28	11.1
	46-+	5	2.0
	Total Sum	**252**	**100**
Income	-10000	87	34.5
	10001-20000	62	24.6
	20 001-30000	61	24.2
	30 001-50 000	27	10.7
	50001- +	5	2.0
	Total Sum	**252**	**100**
SVA usage Purposes	Setting alarm	74	29.4
	Checking weather forecast	66	26.2
	Online Shopping	40	15.9
	Playlist organizing	30	11.9
	Others	147	58,3
SVA Usage Frequency	1-2 times per year	14	5.56
	1-2 times per month	50	19.8
	1-2 times per week	93	36.9
	Non	46	18.3
	Everyday	49	19.4

4.2. Common Method Bias

Common method bias was evaluated by assessing the VIF values (Kock, 2015). Inner VIF scores of models were under the 3.3 threshold, indicating that the data were free from contamination by common method bias errors. (Kock & Lynn, 2012).

4.3. Measurement Model Assessment

First, confirmatory factor analysis (CFA) was conducted to evaluate the measurement model. In this context reliability, convergent validity and discriminant validity are checked. All factor loadings were greater than 0.70, AVE was exceeding the suggested limit of 0.50 (Fornell &Larcker, 1981) confirming the model was convergently validated.

CR values, Cronbach's alpha and AVE were assessed to check the reliability. Cronbach's alfa ranged from 0.808 to 0.956. CR values were greater than 0.50, AVE coefficients were greater than 0.70 confirming the reliability of scales (Fornell & Larcker, 1981). Table 4 shows results of measurement model.

Discriminant validity is assessed by following the Fornell & Larcker (1981) procedure recommending that the square root of AVE values of all the reflective constructs should be higher than the inter-construct correlations (Table 2). Moreover, Heterotrait-Monotrait Ratios HTMT were used to evaluate the discriminant validity of constructs. According to Henseler et al., (2015) HTMT ratios of each construct should be lower than 0.90 to establish discriminant validity. HTMT scores of our constructs were lower than 0.80 (Table 3) confirming the discriminant validity of the measurement model.

Finally, we checked model fit values. Table 5 shows the fit indices of the measurement model. Accordingly, the model produced good fit indices (SRMR<0.10, NFI≥.80). Thus, the validity and reliability analyses of the measurement model were completed. The results of the analyses show that the measurement model achieved the construct validity

Table 2: **Fornell-Larcker Procedure Results**

Factors	Resistance Intention	Perceived Creepiness	Habit	Attitude
Resistance Intention	**0.867**			
Perceived Creepiness	0.349	**0.890**		
Habit	-0.087	-0.094	**0.851**	
Attitude	-0.170	-0.036	0.629	**0.876**

Table 3: **Heterotrait-Monotrait Ratio (HTMT)**

Factors	Resistance Intention	Perceived Creepiness	Habit	Attitude
Resistance Intention				
Perceived Creepiness	0.389			
Habit	0.147	01.07		
Attitude	0.195	0.054	0.743	

Table 4: **Measurement Model Evaluation Results**

Constructs	Labelled items	Factor Loadings	Cronbach Alfa	CR	AVE
Consumer Resistance	RESIST1. I will not use SVA services.	0.887	0.835	0.901	0.752
	RESIST2. Using SVA services will not be wise.	0.865			
	RESIST3.I will not recommend SVA services to others.	0.850			
Habit	HABIT1.The use of VAs has become a habit for me	0.904	0.807	0.887	0.724
	HABIT2. I am addicted to using VAs.	0.859			
	HABIT3. I must use VAs	0.786			
Attitude	ATT1. It would be fun to use SVA service.	0.879	0.849	0.908	0.768
	ATT 2. I am positive about using SVA service.	0.882			
	ATT3. It is wise to use SVA service.	0.827			
Perceived Creepiness	CRP1.Having smart voice assistant in my room would creep me out.	0.818	0.956	0,964	0,792
	CRP2.Using smart voice assistant for shopping is creepy.	0.863			
	CRP3. Using smart voice assistant for shopping makes me feel uncomfortable.	0.922			
	CRP4. This smart voice assistant gives me an eerie feeling.	0.907			
	CRP5.This smart voice assistant creeps me out.	0.903			
	CRP6. I feel uneasy toward using smart voice assistant for shopping.	0.908			
	CRP7. I feel insecure around smart voice assistants.	0.903			

The measurement model of current study is checked with VIF (multicollinearity), R2 (explanatory power), f^2 (effect size) and Q^2 (prediction size) coefficients which were shown in Table 6.

The multicollinearity of the contracts was evaluated with VIF coefficients that should be lower than 5 (Hair et al., 2018: 194). Table 6 shows that constructs are uncontaminated from multicollinearity. R^2 coefficients of the dependent variables were found 0.384 which means for habit meaning %39 of habit is explained, 0.18 for resistance intention meaning %18 of resistance intention is explained, and 0.025 for attitude meaning %3 of the attitude is explaining by model. The effect size of the constructs assessed with f^2 coefficient. Value of f^2 ranged with 0.02 and above points to a low effect size; 0.15 and above points to a medium effect size; 0.35 and above pints to a high effect size (Cohen, 1992). In our model, it is found that the effect size of resistance on attitude (f^2=0.030, R^2=0.025) is at low level, the effect size of perceived creepiness on resistance

(f2=0.139, R^2=0.118) is at medium level, and the effect size of attitude on habit (f^2=0.630, R^2=0.384) is quite high. The Q^2 value is the coefficient of predictive power calculated for the endogenous (dependent) variables, which indicates the validity of the predictive power of the structural model. A value greater than 0 indicates that endogenous variables of the research model have predictive power (Hair et al., 2018). As seen Table 6, Q^2 coefficients are positive indicating endogenous constructs of our model have predictive power.

Table 5: **Model Fit**

	Saturated model	Estimated model
SRMR	0.060	0.062
d_ULS	0.487	0.530
d_G	0.324	0.326
Chi-square	489.103	491.506
NFI	0.846	0.845

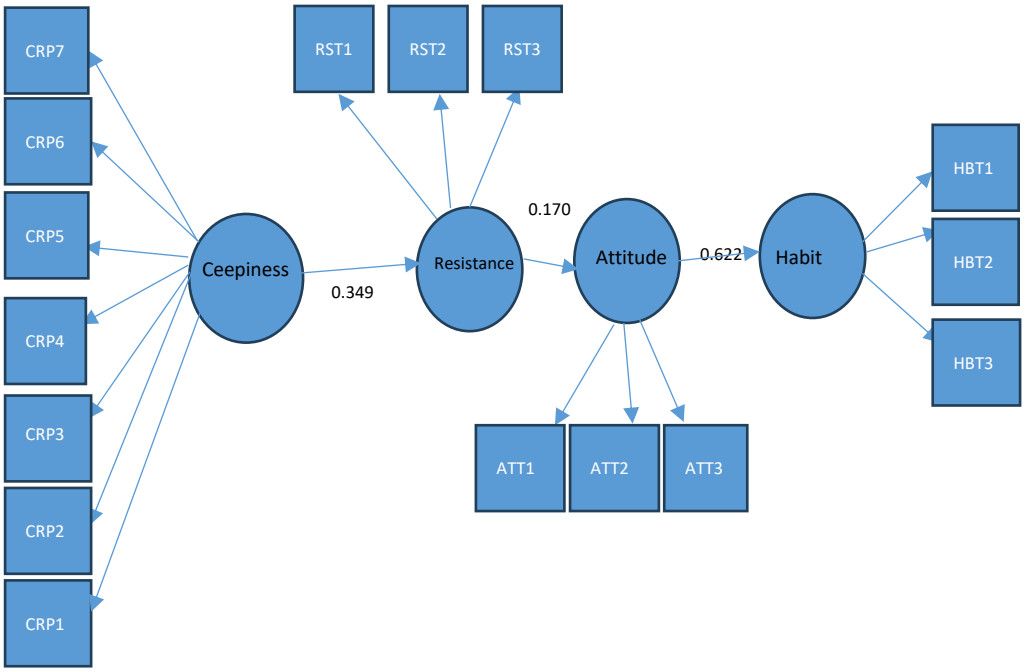
Table 6: **Measurement Model Results**

Constructs	VIF	f^2	R^2	Q^2
Perceived Creepiness -> Resistance Intention	1.000	0.139	01.18	0.005
Resistance Intention -> Attitude	1.000	0.030	0.025	0.000
Attitude -> Habit	1.000	0.630	0.384	0.110

4.4. Hypotheses Testing

After confirming the reliability and the validity measurement model, the hypotheses of structural model were tested with Smart PLS 4.1.0.6. Figure 2 and Table 7 show the results of structural model analyses.

Figure 2: **Results of Structural Model Analysis**



The results indicated that Perceived Creepiness is positively associated with Resistance Intention (β = 0.35, p = 0.00), which supports H1. The effect of resistance intention on attitude is negative (β = -0.17, p = 0.019), that supports H2 and the attitude positively effects habit (β = 0.622, p = 0.00), which shows H3 is supported.

Table 7: **Results of Structural Model**

Hypothesis	β	B	Standard Deviation	t value	P	Supported/ unsupported
H1. Perceived Creepiness -> Resistance Intention	0.349	0.354	0.063	5.563	0.000	**Supported**
H2. Resistance Intention-> Attitude	-0.170	-0.173	0.072	2.345	0.019	**Supported**
H3. Attitude -> Habit	0.622	0.623	0.041	15.051	0.000	**Supported**

5. Conclusion

The purpose of the current study was to investigate the factors influencing the formation of the habit of SVA usage for online shopping within the framework of Behavioural Reasoning Theory (BRT). Specifically, the study examined the effect of perceived creepiness on resistance intention, followed by an analysis of the impact of resistance intention on attitude, and finally, the influence of attitude on consumers' habit formation. The findings highlight the critical role of perceived creepiness in shaping resistance intention, which subsequently affects attitude and habit formation.

The results revealed that perceived creepiness positively affects resistance intention (H1), which aligns with prior studies on the impact of perceived creepiness on resistance intention (Handrich, 2021; Raff et al., 2024). Moreover, there is extant literature on barriers that negatively effects intention to use smart devices (Mani & Chouk, 2018; Lee & Kim, 2024) which supports our finding. Since creepiness can be considered as a psychological barrier (McAndrew & Koehnke, 2016) it is usual to expect it will positively affect resistance intention. Thus, our finding highlights perceived creepiness as a significant predictor of resistance intention towards SVA usage. In the context of SVAs, privacy concerns such as data collection practices, consumer awareness of these practices, and the control of personal data contribute to heightened perceived creepiness (Handrich, 2021), leading to resistance. Since online shopping involves sensitive financial and personal information (e.g., credit card details), consumers may feel uneasy, which results in resistance to SVA usage.

The study also found that resistance intention negatively influences attitudes toward using SVAs for online shopping. This suggests that reasons (against) play a critical role in attitude formation, consistent with the findings of previous BRT studies (Choudhary et al., 2024; Jan et al., 2023). Finally, attitude was shown to positively affect the habit formation of SVA usage. This is consistent with the literature emphasizing the role of attitude as a predictor of behavioural intention and subsequent actions (Westby, 2005; Claudy et al., 2013). The study, therefore, adds to the existing literature by providing evidence for the habit-creation process within the SVA context.

This study aimed to understand the key drivers of resistance towards SVA usage for online shopping. Also, understanding the creation process of a strong habit of SVA usage for online shopping of consumers in BRT perspective. Findings offered notable implications for theoretical frameworks, managers, and designers of smart voice assistants in the realm of online shopping. Theoretically, current study enriches the comprehension of customer motivations, attitudes, and behavioural intentions regarding the use of smart voice assistants. This study contributes to the literature in several ways. First, it enriches the SVA resistance literature within the online shopping context, which has been underexplored compared to studies focused on adoption or acceptance (Al Fariat et al., 2023; Fernandes & Oliveira, 2021). Second, by examining perceived creepiness as a precursor to the "reason against" component in BRT, the study extends the theoretical framework as a response to Sahu et al. (2022). Lastly, the research incorporates habit creation as a dependent variable, broadening the understanding of how attitudes and resistance intentions shape habitual behaviours in the SVA context.

For retail managers and developers, the study offers actionable insights. By identifying the key drivers of customer engagement and resistance, they can tailor the design and implementation of these technologies to optimize the customer experience and achieve better business results. According to the findings to foster habit creation and loyalty among users, companies should address the factors contributing to perceived creepiness. Specifically, strategies to reduce creepiness could involve emphasizing the benefits of SVAs, such as time and cost savings, while simultaneously showcasing their commitment to data privacy and security. For example, marketing campaigns can highlight privacy-sensitive practices in advertising slogans to alleviate consumers' concerns. By doing so, businesses can create a more comfortable and appealing environment for SVA usage, encouraging habit formation and long-term customer engagement.

This study has several limitations. First, the use of convenience sampling limits the generalizability of the findings. Second, the sample was restricted to the 19–25 age group, which may reduce the broader applicability of the results. Future research should include a more diverse sample, incorporating participants from different age groups to enhance generalizability.

In addition, further studies could explore the integration of "reasons for" components into the model to provide a more balanced view of behavioural reasoning. Examining additional variables such as privacy concerns and perceived cynicism could enrich the understanding of resistance behaviours. Finally, future research could investigate the impact of anthropomorphism on perceived creepiness, shedding light on how human-like characteristics in SVAs influence consumer attitudes and resistance.

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